

**Notice of Allowability**

Application No.

10/038,585

Examiner

Tung S. Lau

Applicant(s)

CHETAY ET AL.

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/16/2006.
2. ☒ The allowed claim(s) is/are 15-17 and 19-32.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date See office action
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/16/2006 has been entered.

### **Information Disclosure Statement**

2. Information Disclosure Statement filed on 10/16/2006 is acknowledged by the examiner; A copy of a signed PTO-1449 attached with this office action.

### ***Allowable Subject Matter***

3. Claims 15-17, 19-32 are allowed.

### ***Reasons for Allowance***

4. The following is an examiner's statement of reasons for allowance:  
Independent claims 15, 28, 29, 30 and 31 contain allowable subject matter. None of the prior art of record shows or fairly suggests the claimed invention.

Regarding claim 15:

The primary reason for the allowance of claim 15 is the inclusion of the method of monitoring the proportion X of a component in a gaseous mixture, said gaseous

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mixture having two components, a first component which is SF<sub>6</sub> and a second component selected from the group consisting of N<sub>2</sub> and CF<sub>4</sub> and being contained in an electrical switchgear enclosure, said method comprising the steps of:

$$\underline{P(SF_6) = A1. \rho(SF_6) + A2. (\rho(SF_6))^2 + A3. (\rho(SF_6))^3}$$

and

$$\underline{P(N_2) = A4. \rho(N_2),}$$

$$\underline{P = X. P(N_2) + (1-X). P(SF_6),}$$

$$\underline{\rho = \rho(N_2) + \rho(SF_6),}$$

or

$$\underline{P(CF_4) = A4. \rho(CF_4),}$$

$$\underline{P = X. P(CF_4) + (1-X). P(SF_6),}$$

$$\underline{\rho = \rho(CF_4) + \rho(SF_6)}$$

where A1, A2, A3 and A4 are functions of T,

P(SF<sub>6</sub>) and P(N<sub>2</sub> or CF<sub>4</sub>) are the partial pressures of SF<sub>6</sub> and (N<sub>2</sub> or CF<sub>4</sub>),

$\rho(N_2)$ ,  $\rho(CF_4)$  and  $\rho(SF_6)$  are the densities of N<sub>2</sub>, CF<sub>4</sub> and SF<sub>6</sub>,

It is these features found in the claim, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes this claim allowable over the prior art.

Claims 16, 17, 19-27 and 32 are allowed due to their dependency on claim 15.

Regarding claim 28:

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The primary reason for the allowance of claim 28 is the inclusion of an electrical switchgear provided with an enclosure containing a gaseous mixture of at least two dielectric gases under pressure, a first component which is SF<sub>6</sub> and a second component selected from the group consisting of N<sub>2</sub> or CF<sub>4</sub>, wherein the proportion X of one of these dielectric gases in the mixture is determined by implementing a method including the steps of:

$$\underline{P(SF_6) = A1 \cdot \rho(SF_6) + A2 \cdot (\rho(SF_6))^2 + A3 \cdot (\rho(SF_6))^3}$$

and

$$\underline{P(N_2) = A4 \cdot \rho(N_2)}$$

$$\underline{P = X \cdot P(N_2) + (1-X) \cdot P(SF_6)}$$

$$\underline{\rho = \rho(N_2) + \rho(SF_6)}$$

or

$$\underline{P(CF_4) = A4 \cdot \rho(CF_4)}$$

$$\underline{P = X \cdot P(CF_4) + (1-X) \cdot P(SF_6)}$$

$$\underline{\rho = \rho(CF_4) + \rho(SF_6)}$$

where A1, A2, A3 and A4 are functions of T,

P(SF<sub>6</sub>) and P(N<sub>2</sub> or CF<sub>4</sub>) are the partial pressures of SF<sub>6</sub> and (N<sub>2</sub> or CF<sub>4</sub>),

ρ(N<sub>2</sub>), ρ(CF<sub>4</sub>) and ρ(SF<sub>6</sub>) are the densities of N<sub>2</sub>, CF<sub>4</sub> and SF<sub>6</sub>,

It is these features found in the claim, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes this claim allowable over the prior art.

Regarding claim 29:

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The primary reason for the allowance of claim 29 is the inclusion of a method of monitoring the proportion X of a component in a gaseous mixture, said gaseous mixture having at least two components, a first component which is SF<sub>6</sub> and a second component selected from the group consisting of N<sub>2</sub> or CF<sub>4</sub>, and being contained in an electrical switchgear enclosure, said method comprising the steps of:

$$\underline{P(SF_6) = A1 \cdot \rho(SF_6) + A2 \cdot (\rho(SF_6))^2 + A3 \cdot (\rho(SF_6))^3}$$

and

$$\underline{P(N_2) = A4 \cdot \rho(N_2)}$$

$$\underline{P = X \cdot P(N_2) + (1-X) \cdot P(SF_6)}$$

$$\underline{\rho = \rho(N_2) + \rho(SF_6)}$$

or

$$\underline{P(CF_4) = A4 \cdot \rho(CF_4)}$$

$$\underline{P = X \cdot P(CF_4) + (1-X) \cdot P(SF_6)}$$

$$\underline{\rho = \rho(CF_4) + \rho(SF_6)}$$

where A1, A2, A3 and A4 are functions of T,

P(SF<sub>6</sub>) and P(N<sub>2</sub> or CF<sub>4</sub>) are the partial pressures of SF<sub>6</sub> and (N<sub>2</sub> or CF<sub>4</sub>),

ρ(N<sub>2</sub>), ρ(CF<sub>4</sub>) and ρ(SF<sub>6</sub>) are the densities of N<sub>2</sub>, CF<sub>4</sub> and SF<sub>6</sub>, and

It is these features found in the claim, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes this claim allowable over the prior art.

Regarding claim 30:

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The primary reason for the allowance of claim 30 is the inclusion of a system for monitoring the proportion X of a component in a gaseous mixture, said gaseous mixture having two components, a first component which is SF<sub>6</sub> and a second component selected from the group consisting of N<sub>2</sub> or CF<sub>4</sub>, and being contained in an electrical switchgear enclosure, said system comprising:

$$\underline{P(SF_6) = A1 \cdot \rho(SF_6) + A2 \cdot (\rho(SF_6))^2 + A3 \cdot (\rho(SF_6))^3}$$

and

$$\underline{P(N_2) = A4 \cdot \rho(N_2)}$$

$$\underline{P = X \cdot P(N_2) + (1-X) \cdot P(SF_6)}$$

$$\underline{\rho = \rho(N_2) + \rho(SF_6)}$$

or

$$\underline{P(CF_4) = A4 \cdot \rho(CF_4)}$$

$$\underline{P = X \cdot P(CF_4) + (1-X) \cdot P(SF_6)}$$

$$\underline{\rho = \rho(CF_4) + \rho(SF_6)}$$

where A1, A2, A3 and A4 are functions of T,

P(SF<sub>6</sub>) and P(N<sub>2</sub> or CF<sub>4</sub>) are the partial pressures of SF<sub>6</sub> and (N<sub>2</sub> or CF<sub>4</sub>),

$\rho(N_2)$ ,  $\rho(CF_4)$  and  $\rho(SF_6)$  are the densities of N<sub>2</sub>, CF<sub>4</sub> and SF<sub>6</sub>.

It is these features found in the claim, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes this claim allowable over the prior art.

Regarding claim 31:

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The primary reason for the allowance of claim 30 is the inclusion of a system for monitoring the proportion X of a component in a gaseous mixture, said gaseous mixture having at least two components, a first component which is SF<sub>6</sub> and a second component selected from the group consisting of N<sub>2</sub> or CF<sub>4</sub>, and being contained in an electrical switchgear enclosure, said system comprising:

$$\underline{P(SF_6) = A1 \cdot \rho(SF_6) + A2 \cdot (\rho(SF_6))^2 + A3 \cdot (\rho(SF_6))^3}$$

and

$$\underline{P(N_2) = A4 \cdot \rho(N_2),}$$

$$\underline{P = X \cdot P(N_2) + (1-X) \cdot P(SF_6),}$$

$$\underline{\rho = \rho(N_2) + \rho(SF_6),}$$

or

$$\underline{P(CF_4) = A4 \cdot \rho(CF_4),}$$

$$\underline{P = X \cdot P(CF_4) + (1-X) \cdot P(SF_6),}$$

$$\underline{\rho = \rho(CF_4) + \rho(SF_6)}$$

where A1, A2, A3 and A4 are functions of T,

P(SF<sub>6</sub>) and P(N<sub>2</sub> or CF<sub>4</sub>) are the partial pressures of SF<sub>6</sub> and (N<sub>2</sub> or CF<sub>4</sub>),

ρ(N<sub>2</sub>), ρ(CF<sub>4</sub>) and ρ(SF<sub>6</sub>) are the densities of N<sub>2</sub>, CF<sub>4</sub> and SF<sub>6</sub>.

It is these features found in the claim, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes this claim allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should

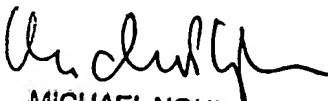
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preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Contact information**

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung S Lau whose telephone number is 571-272-2274. The examiner can normally be reached on M-F 9-5:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on 571-272-2269. The fax phone numbers for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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MICHAEL NGHIEM  
PRIMARY EXAMINER